The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ROGER R. LESIEUR, DONALD F. SZYDLOWSKI, THOMAS J. BARBER, LOUIS M. CHIAPPETTA, and WILLIAM O. PESCHKE

Appeal No. 2005-1561
Application No. 10/091,223

ON BRIEF

Before GARRIS, WALTZ, and TIMM, Administrative Patent Judges.
WALTZ, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal from the primary examiner's non-final rejection of claims 3 through 17, which are the only claims pending in this application. Although this appeal is from the non-final Office action dated April 19, 2004, we have jurisdiction since these claims have been twice rejected. See 35 U.S.C. § 134 (2003) and *Ex parte Lemoine,* 46 USPQ2d 1420, 1422-23 (Bd. Pat. App. & Int. 1998).

According to appellants, the invention is directed to a method for mixing a fuel/steam gas with an oxidant gas to form an

essentially homogenous fuel/steam/oxidant mixture which is suitable for use in an autothermal fuel gas reformer (Brief, pages 1-2).[1] Appellants state that claims 3-17 "stand or fall together" (Brief, page 2).[2] Accordingly, we limit our consideration in this appeal to claim 3. See 37 CFR § 1.192(c)(7)(2003); *In re McDaniel*, 293 F.3d 1379, 1383, 63 USPQ2d 1462, 1465 (Fed. Cir. 2002). A copy of representative independent claim 3 is attached as an Appendix to this decision.

The examiner has relied upon the following references as evidence of unpatentability:

Dunster et al. (Dunster)	4,865,820	Sep. 12, 1989
Fourie et al. (Fourie) (U.S. Statutory Invention Registration)	H1,849	May 02, 2000
O'Connell et al. (O'Connell)	6,223,843 B1	May 01, 2001
Lomax et al. (Lomax) (filed Oct. 19, 1999)	6,368,735 B1	Apr. 09, 2002

Claims 3, 4, 8, 12, 13 and 17 stand rejected under 35 U.S.C. § 102(b) as anticipated by Dunster (Answer, page 3). Claims 5-7, 9-11 and 14-16 stand rejected under 35 U.S.C. § 103(a) as

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[1]All reference to and citation from the "Brief" refers to the Supplemental Appeal Brief dated May 3, 2004.

[2]The examiner incorrectly states that appellants' Brief includes a statement that the claims do not stand or fall together, as well as providing reasons therefore (Answer, page 2, ¶ (7)).

unpatentable over Dunster in view of Fourie, O'Connell or Lomax (Answer, page 5). Based on the totality of the record, including due consideration of the opposing viewpoints presented in the Brief and the Answer, we *affirm* all of the rejections on appeal essentially for the reasons stated in the Answer, as well as those reasons set forth below.

OPINION

A. The Rejection under § 102(b)

The examiner finds that Dunster discloses every limitation of claim 3 on appeal, but teaches maintaining a pressure differential between the interior of the transfer tubes and the manifold to achieve complete mixing while appellants define this same pressure differential in terms of penetration distance of the radially flowing stream into the transfer tube (Answer, pages 3-4; see step j) of claim 3 on appeal). The examiner concludes that since Dunster teaches maintaining a pressure differential which provides the same result (uniform mixing of streams) as the claimed invention, the pressure differential taught by Dunster will inherently provide the claimed axial stream penetration (Answer, page 4).

Appellants argue that the examiner has not provided any factual basis for the alleged "inherency" (Brief, page 5).

Appellants argue that Dunster requires turbulent gas stream flows and does not suggest pressure differential as a key factor in the process (Brief, pages 6-7). Finally, appellants argue that uniform gas flows, as described by Dunster, and homogenous gas mixtures, as claimed by appellants, are not the same thing (Brief, page 8).

Appellants' arguments are not persuasive. As held by a predecessor of our reviewing court:

> [I]t is elementary that the mere recitation of a newly discovered function or property, inherently possessed by things in the prior art, does not cause a claim drawn to those things to distinguish over the prior art. Additionally, where the Patent Office has *reason to believe* that a functional limitation asserted to be critical for establishing novelty in the claimed subject matter may, in fact, be an inherent characteristic of the prior art, it possesses the authority to require the applicant to prove that the subject matter shown to be in the prior art does not possess the characteristic relied on. [Citation omitted]. This burden ... is applicable to product and process claims reasonably considered as possessing the allegedly inherent characteristics. [emphasis added].[3]

Accordingly, where the examiner has established a reasonable belief that the limitation or characteristic asserted to be critical for establishing novelty may be an inherent

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[3]See In re Best, 562 F.2d 1252, 1254-55, 195 USPQ 430, 433 (CCPA 1977), quoting from In re Swinehart, 439 F.2d 210, 212-13, 169 USPQ 226, 229 (CCPA 1971). See also In re Spada, 911 F.2d 705, 708, 15 USPQ2d 1655, 1657-58 (Fed. Cir. 1990).

characteristic of the prior art, the burden shifts to appellant to prove otherwise. *See In re Best*, 562 F.2d at 1255, 195 USPQ at 433-34.

The examiner finds that Dunster teaches maintaining a pressure differential which provides the same result as the claimed invention, namely uniform or complete mixing (Answer, page 6). Dunster repeatedly teaches that complete mixing of the gas streams is desired and achieved (abstract; col. 1, ll. 26-27; col. 2, ll. 28-31, ll. 37-39, ll. 43-46, and ll. 54-55; col. 3, ll. 49-50). Dunster further teaches that the radially flowing stream of gas entering the transfer tubes creates additional turbulence (i.e., is "entrained and deflected") which further enhances the mixing (col. 6, ll. 5-13). Finally, Dunster teaches a pressure differential which will enhance turbulence, thus promoting more mixing and producing a uniform gas flow (col. 4, l. 67-col. 5, l. 21). As noted by the examiner (Answer, page 6), appellant controls the extent of air (oxidant) penetration into the fuel-steam stream to achieve a "sufficiently thorough mixing" (specification, page 4, second full paragraph).

Accordingly, we determine that the examiner has established a reasonable belief that Dunster, using the same apparatus, including cylindrical transfer tubes with a plurality of gas

entry passages, while maintaining a pressure differential between the interior of the tubes and the manifold that results in the radially flowing stream entering the tubes to be turbulently mixed into the axially flowing stream, achieves complete or thorough mixing of the gas streams with the same penetration distance as required by claim 3 on appeal. Therefore the burden of proof has shifted to appellant, and appellant's arguments do not meet this burden. Thus we affirm the examiner's rejection of claim 3, and claims 4, 8, 12, 13 and 17 which stand or fall with claim 3, under section 102(b) over Dunster.

B. The Rejections based on § 103(a)

The examiner finds that Dunster, as discussed above, discloses the general reforming of hydrocarbons but does not disclose specific hydrocarbons such as gasoline, diesel fuel and methanol (Answer, page 5). Therefore the examiner cites Fourie, O'Connell or Lomax for the teaching that gasoline, diesel fuel and methanol are typical reformable fuels (Answer, pages 5-6). From these findings, the examiner concludes that it would have been obvious to one of ordinary skill in this art at the time of appellants' invention to select any typical hydrocarbon, as taught by Fourie, O'Connell, or Lomax, for the reforming process of Dunster (*id.*).

Appellants do not dispute the teachings relied upon by the examiner from the citation of Fourie, O'Connell or Lomax (Brief, page 3). Appellants only argue the deficiencies of Dunster as discussed above. Therefore we incorporate our remarks from above regarding Dunster and affirm the examiner's rejection based on section 103(a).

C. Summary

The rejection of claims 3, 4, 8, 12, 13 and 17 under 35 U.S.C. § 102(b) over Dunster is affirmed. The rejections of claims 5-7, 9-11 and 14-16 under 35 U.S.C. § 103(a) over Dunster in view of Fourie, O'Connell or Lomax are also affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(1)(iv)(2004).

AFFIRMED

BRADLEY R. GARRIS Administrative Patent Judge	)	
THOMAS A. WALTZ Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
CATHERINE TIMM Administrative Patent Judge	)	

TAW/jrg

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APPENDIX

3. A method for mixing a fuel/steam gas with an oxidant gas to form an essentially homogeneous fuel/steam/oxidant mixture suitable for use in an autothermal fuel gas reformer catalyst bed, said method comprising the steps of:
a) providing an autothermal reformer catalyst bed having an inlet end;
b) providing an air/fuel/steam mixing station adjacent to said inlet end of said catalyst bed, said mixing station including an inlet chamber, a manifold interposed between said inlet chamber and said catalyst bed inlet end;
c) providing a plurality of cylindrical transfer tubes extending through said manifold from said inlet chamber to said inlet end of said catalyst bed each of said cylindrical transfer tubes having a plurality of gas entry passages in side walls of each of said transfer tubes, each of said gas [sic, entry] passages having an axis which is perpendicular to an axis of said transfer tubes, each of said gas entry passages being spaced apart from said catalyst bed inlet end a distance which is at least two times the diameter of said cylindrical transfer tubes;
d) providing a first gas inlet passage opening into said inlet chamber;
e) providing a second gas inlet passage opening into said manifold;
f) Introducing a vaporized fuel/steam mixture into one of said inlet chamber or said manifold;
g) introducing an oxidant gas into the other of said inlet chamber or said manifold,
h) causing one of said fuel/steam mixture or said oxidant gas stream to flow axially through said transfer tubes toward said inlet end of said catalyst bed;
i) causing the other of said fuel/steam mixture or said oxidant to flow from said manifold radially into said transfer tubes through said gas entry passages; and
j) maintaining a pressure differential between the interior of said transfer tubes and said manifold which will result in the radially flowing stream entering said transfer tubes to be entrained and deflected into the axially flowing stream in the transfer tubes before the radially flowing stream penetrates the interior of the transfer tubes a distance which is about one-half of the radius of the interior of the transfer tubes.